UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
SNYDER, STEVEN G

ART UNIT	PAPER NUMBER
2184	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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		Application No.	Applicant(s)
Office Action Summary		10/562,553	MOROZUMI ET AL.
		Examiner	Art Unit
		STEVEN G. SNYDER	2184

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>28 December 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>10-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>10-13 and 15-20</u> is/are rejected.

7) ☒ Claim(s) <u>14</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This is in response to communication filed on December 28, 2009.

Status of Claims

Claims 10 – 20 are pending, of which claim 10 is in independent form.

Claim Objections

1.   **Claims 13 – 16** are objected to because of the following informalities: **Claim 13**

states "with HTTP protocol, and the web server system supports CGI and/or SSI" in

lines 7 – 8 of the claim, with no further definition of these abbreviations. The examiner

suggests amending this claim to read "with <u>Hypertext Transfer Protocol (</u>HTTP<u>)</u>

~~protocol~~, and the web server system supports <u>Common Gateway Interface (</u>CGI<u>)</u> and/or

<u>Server Side Include (</u>SSI<u>)</u>." Claim 14 inherits this objection based on its dependency on

claim 13. Also, **claim 15** states "one of the plurality of types of input/output interfaces is

a PC interface" in line 3 of the claim, with no further definition of the abbreviation PC.

The examiner suggests amending this claim to read "one of the plurality of types of

input/output interfaces is a <u>personal computer (</u>PC<u>)</u> interface." Finally, **claim 16** states

"an SNTP client function" in line 6 of the claim, with no further definition of the

abbreviation SNTP. The examiner suggests amending this claim to read "a~~n~~ <u>Simple</u>

<u>Network Time Protocol (</u>SNTP<u>)</u> client function." Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   **Claims 10 – 12 and 17 – 19 are rejected under 35 U.S.C. 103(a) as being**

unpatentable over Brown et al., U.S. Patent 6,881,096 (hereinafter referred to as

Brown) in view of Ferguson, U.S. Patent 5,933,826 (hereinafter referred to as

Ferguson), further in view of 'The Safe-Tcl Security Model' by Ousterhout et al.

(hereinafter referred to as Ousterhout).

       Referring to claim 10, Brown discloses "A multipurpose semiconductor

integrated circuit device" (Fig. 5) comprising: "a plurality of types of input/output

interfaces" (Fig. 5, serial interface 64 and Ethernet interface 58. Also, column 2 lines 51

– 58, other interfaces can be added); "a non-volatile memory" (Fig. 5, flash memory).

       Brown also discloses "The flash memory 66 stores the software that the

controller block 56 uses to perform its functions" (column 6 lines 24 – 26).

       Brown does not appear to explicitly disclose the non-volatile memory "including a

file storage region for storing a script file and firmware in a non-volatile manner, the

firmware including program modules for functioning of an application layer, the script file

defining, using a script language, processes relating to data input and/or output though

the plurality of types of input/output interfaces with the program modules."

However, Ferguson discloses controlling access to at least a portion of a

directory (<u>column 2 line 65 – column 3 line 2</u>) and an access control mechanism that

controls access to a program, such as a script, pseudo code, or object code (<u>column 2</u>

<u>lines 52 – 64</u>). Ferguson also discloses separating applications that interact with human

users from applications that process requests (<u>column 3 lines 44 – 59</u>).

Therefore, while Ferguson also does not appear to explicitly disclose a file

storage region for storing a script file and firmware, based on Ferguson's disclosure, it

would have been obvious to one of ordinary skill in the art at the time of the invention to

create regions in memory for storing scripts, firmware, etc.

Segmenting or fragmenting of memory is known in the art at the time of the

invention and keeping the scripts, pseudo code, and object code separated would allow

the system to make quicker decisions about access control.

Brown also does not appear to explicitly disclose "a file management system that

admits access to the file storage region of the non-volatile memory through at least one

of the plurality of types of input/output interfaces, the file management system being

configured to allow a user to manipulate the script file stored in the file storage region in

an exposed state without exposing the firmware stored in the file storage region."

However, Ferguson discloses limiting a given program's capability of accessing

memory and programs (<u>column 2 lines 26 – 39</u>). Ferguson also discloses an access

control mechanism that controls access to a program, such as a script, pseudo code, or

object code (<u>column 2 lines 52 – 64</u>).

Therefore, while Ferguson does not appear to explicitly disclose allowing a user to manipulate the script file in an exposed state, while the firmware remains not exposed, it would have been obvious to one of ordinary skill in the art at the time of the invention to do so since Ferguson discloses controlling access to scripts, pseudo code, or object code.

The motivation for doing so can be seen in column 2 line 65 – column 3 line 2, where it is stated that the access control mechanism controls access to at least a portion of a directory.

Brown also does not appear to explicitly disclose "an interpreter."

However, Ferguson discloses maintaining security of executable content (<u>column 1 lines 26 – 27</u>), such as scripts, which require an interpreter for execution (<u>column 1 line 63 – column 2 line 5</u>).

Brown and Ferguson are analogous art because they are from the same field of endeavor, which is network communications controlled by programs.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown and Ferguson before him or her, to modify the teachings of Brown to include the teachings of Ferguson so that a program cannot be executed unless access has been permitted by a control mechanism.

The motivation for doing so would have been to protect the controller's memory from unauthorized access and/or hacking on a directory or file level (as stated by Ferguson in column 2 lines 26 – 39).

Neither Brown nor Ferguson appears to explicitly disclose the interpreter "being configured to execute only commands of the script file relating to the input and/or output of data through the plurality of types of input/output interfaces with the program modules, and to execute processes of inputting data and outputting data through the plurality of types of input/output interfaces with the program modules."

However, Ousterhout discloses how 'different interpreters can have different command sets with different security properties' (page 4, second bullet). Ousterhout also discloses isolating potentially harmful processes via safe interpreters, wherein unsafe commands are made inaccessible (section 4 on page 6 and Table 1 on page 7).

Brown, Ferguson, and Ousterhout are analogous art because they are from the same field of endeavor, which is network communication control.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown, Ferguson, and Ousterhout before him or her, to modify the teachings of Brown and Ferguson to include the teachings of Ousterhout so that an interpreter can have its command set minimized to only execute the inputting or outputting of data via input/output interfaces.

The motivation for doing so would have been to protect the system from security problems (as stated by Ousterhout in the first paragraph on page 2).

Therefore, it would have been obvious to combine Ousterhout with Brown and Ferguson to obtain the invention as specified in the instant claim.

As per claim 11, Brown discloses "one of the plurality of types of input/output interfaces is a network interface that is accessed based on an address on a computer network and supports at least one network protocol that is valid for the computer network, another one of the plurality of types of input/output interfaces is a serial interface that supports serial input/outputs, and the multipurpose semiconductor integrated circuit device further comprises a transfer means for transferring data between the network interface and the serial interface" (<u>Fig. 5, serial interface 64 and Ethernet interface 58. Also, controller block 56 handles protocol conversion</u>).

As per claim 12, Brown does not appear to explicitly disclose "a plurality of script files are stored in the file storage region."

However, Ferguson discloses Ferguson discloses maintaining security of executable content such as scripts (<u>column 1 lines 26 – 27</u>).

Brown also does not appear to explicitly disclose "the multipurpose semiconductor integrated circuit device further comprises a program management system that monitors occurrences of events, selects one of the plurality of script files that is associated with an event that has occurred, and causes a selected script file to be executed by the interpreter."

However Ferguson discloses receiving a signal that an event has occurred and triggering an appropriate method (<u>column 10, lines 7 – 29 and the example given in lines 30 – 42</u>). Also, Ferguson discloses maintaining security of executable content

(column 1 lines 26 – 27), such as scripts, which require an interpreter for execution

(column 1 line 63 – column 2 line 5).

   Brown and Ferguson are analogous art because they are from the same field of

endeavor, which is network communications controlled by programs.

   At the time of the invention, it would have been obvious to one of ordinary skill in

the art, having the teachings of Brown and Ferguson before him or her, to modify the

teachings of Brown to include the teachings of Ferguson so that an event causes a

selection of a script to handle the event.

   The motivation for doing so would have been to automate the system so the

system does not merely store content passively (as described by Ferguson in column

10 lines 7 – 12).

   Therefore, it would have been obvious to combine Ferguson with Brown to obtain

the invention as specified in the instant claim.

   As per claim 17, Brown discloses "a connector connected to one of the plurality

of types of input/output interfaces" (Fig. 1, Ethernet connector).

   As per claim 18, Brown discloses "a target device connected to one of the

plurality of types of input/output interfaces" (column 6 lines 35 – 46, IO pins 20 used to

communicate with an external device); and "a connector connected to another one of

the plurality of types of input/output interfaces" (Fig. 1, Ethernet connector).

As per claim 19, Brown discloses "the non-volatile memory device is a flash memory" (<u>Fig. 5, flash memory 60</u>).

4.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Ferguson, further in view of Ousterhout, as applied to claims 10 – 12 and 17 – 19 above, further in view of Seta, U.S. Patent Application 2001/0018707 (hereinafter referred to as Seta).

As per claim 13, Brown discloses "one of the plurality of types of input/output interfaces is a network interface that admits accessing a computer network" (<u>Fig. 5, Ethernet interface 58 along with column 1 lines 28 – 35</u>).

Neither Brown nor Ferguson nor Ousterhout appears to explicitly disclose "the multipurpose semiconductor integrated circuit device further comprises a web server system that supplies at least one web output file stored in the file storage region via the network interface in accordance with HTTP protocol, and the web server system supports CGI and/or SSI and the program management system selects a script file designated using CGI and/or SSI."

However, Seta discloses a web server system 10 connected to the Internet 20 (<u>Fig. 1</u>). The web control server 10 is shown as including a web content block 11 having an HTML section 12 and a CGI/SSI section 13 (<u>Fig. 2</u>). Further, Seta discloses messages being sent including a request/result/event section for requesting processing, containing the result of processing, or describing an event (<u>Fig. 3 and [0020]</u>).

Brown, Ferguson, Ousterhout, and Seta are analogous art because they are from the same field of endeavor, which is network communication control.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown, Ferguson, Ousterhout, and Seta before him or her, to modify the teachings of Brown, Ferguson, and Ousterhout to include the teachings of Seta so that a web server that supports CGI and SSI is used to place data on the web.

The motivation for doing so would have been to provide a means for connecting the system to the internet.

Therefore, it would have been obvious to combine Seta with Brown, Ferguson, and Ousterhout to obtain the invention as specified in the instant claim.

5.   **Claims 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Ferguson, as applied to claims 10 – 12 and 17 – 19 above, further in view of Mahajan, U.S. Patent 5,404,528 (hereinafter referred to as Mahajan).**

As per claim 15, Brown discloses "one of the plurality of types of input/output interfaces is a PC interface for connecting to a computer terminal" (column 2 lines 47 – 57, many interfaces including USB are possible).

Neither Brown nor Ferguson nor Ousterhout appears to explicitly disclose "the file management system admits the computer terminal to access the file storage region as a mass storage class via the PC interface."

However, Mahajan discloses accessing "the file storage region as a mass storage class" (Fig. 2 mass storage memory 120).

Brown, Ferguson, Ousterhout, and Mahajan are analogous art because they are from the same field of endeavor, which is accessing data in memory.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown, Ferguson, Ousterhout, and Mahajan before him or her, to modify the teachings of Brown, Ferguson, and Ousterhout to include the teachings of Mahajan so that the system would have the capability of connecting to a serial port and a network interface, so that the device could attach to a PC as a mass storage device.

The motivation for doing so would have been to provide a means for connecting the device to a PC in concordance with a widely used class that a PC would recognize.

Therefore, it would have been obvious to combine Mahajan with Brown, Ferguson, and Ousterhout to obtain the invention as specified in the instant claim.

6.   **Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Ferguson, further in view of Ousterhout, as applied to claims 10 – 12 and 17 – 19 above, and further in view of Kaji, Japanese Patent Application 2003-108539 (hereinafter referred to Kaji) (from applicant's IDS).**

As per claim 16, Brown discloses "one of the plurality of types of input/output interfaces is a network interface that admits accessing a computer network" (<u>Fig. 5, Ethernet interface 58 along with column 1 lines 28 – 35</u>).

Neither Brown nor Ferguson nor Ousterhout appears to explicitly disclose "the multipurpose semiconductor integrated circuit device further comprises a timer function and an SNTP client function for obtaining time information via the network interface and synchronizing the timer function, and the program management system selects one of the plurality of script files based on time information of the timer function."

However, Kaji discloses synchronizing timing between a client and a server. This is done by transmitting a command and performing calculations (<u>translated abstract of Kaji</u>).

Brown, Ferguson, Ousterhout, and Kaji are analogous art because they are from the same field of endeavor, which is accessing data in memory.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown, Ferguson, Ousterhout, and Kaji before him or her, to modify the teachings of Brown, Ferguson, and Ousterhout to include the teachings of Kaji so that timing information is used to select a script.

The motivation for doing so would have been to provide a means for determining which script is best suited for the current task.

Therefore, it would have been obvious to combine Kaji with Brown, Ferguson, and Ousterhout to obtain the invention as specified in the instant claim.

7.   **Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over**
Brown in view of Ferguson, as applied to claims 10 – 12 and 17 – 19 above, and
further in view of Howard et al., U.S. Patent 6,954,850 (hereinafter referred to
Howard).

        As per claim 20, Brown does not appear to explicitly disclose "the file
management system is configured to provide, to the user, open generation and access
to the script file."

        However, Ferguson discloses limiting a given program's capability of accessing
memory and programs (column 2 lines 26 – 39). Ferguson also discloses an access
control mechanism that controls access to a program, such as a script, pseudo code, or
object code (column 2 lines 52 – 64).

        Therefore, while Ferguson does not appear to explicitly disclose allowing a user
to manipulate the script file in an exposed state, while the firmware remains not
exposed, it would have been obvious to one of ordinary skill in the art at the time of the
invention to do so since Ferguson discloses controlling access to scripts, pseudo code,
or object code.

        The motivation for doing so can be seen in column 2 line 65 – column 3 line 2,
where it is stated that the access control mechanism controls access to at least a
portion of a directory.

Brown and Ferguson are analogous art because they are from the same field of endeavor, which is network communications controlled by programs.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown and Ferguson before him or her, to modify the teachings of Brown to include the teachings of Ferguson so that access is selectively granted to program memory.

The motivation for doing so would have been to enhance security of programs (as described by Ferguson in column 1 lines 11 – 25).

Neither Brown nor Ferguson nor Ousterhout appears to explicitly disclose allowing access to the script file "for at least one of updating of the script file and maintenance of user logic."

However, Howard discloses updating program code in an adapter device with multiple interfaces (Fig. 2 and column 5 lines 47 – 67).

Brown, Ferguson, Ousterhout, and Howard are analogous art because they are from the same field of endeavor, which is accessing data in memory.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Brown, Ferguson, Ousterhout, and Howard before him or her, to modify the teachings of Brown, Ferguson, and Ousterhout to include the teachings of Howard so that program code could be updated after a user is selectively given access to program memory.

The motivation for doing so would have been to provide a means for updating a device's capabilities while maintaining a level of security.

Therefore, it would have been obvious to combine Howard with Brown, Ferguson, and Ousterhout to obtain the invention as specified in the instant claim.

Allowable Subject Matter

8.   **Claim 14** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9.   Applicant's arguments filed December 28, 2009 have been fully considered but they are not persuasive.

Applicant argues, on page 11 lines 8 – 14, that one skilled in the art would not have reason or been motivated to modify the converter 10 of Brown to include an interpreter to execute script files and a file management system that is configured to allow a user to manipulate such script files in an exposed state without exposing the firmware in the non-volatile memory of PCB 50. On the contrary, Brown discloses an opposite technique which requires editing of the firmware in order to modify the functions of the converter 10, such as to accommodate different input/output interface devices.

The examiner disagrees. As stated above, Brown appears to allow direct editing of firmware for modifying the functionality. However, Ferguson discloses a method for securing and storing executable content. Ferguson also discloses not allowing

unauthorized access to executable programs. Therefore, while Brown's disclosure does not appear to discuss security of firmware, programs, etc., Ferguson's disclosure would clearly motivate one of ordinary skill in the art to take security measures in regards to executable programs.

   Applicant argues, on page 11 line 28 – page 12 line 13, that the combination of Ferguson and Brown would render the controller of Brown inoperable and/or would change the principle of operation.

   The examiner disagrees. Brown's converter jack is described as being capable of converting between Ethernet and many other interfaces, with slight modifications (column 2 lines 51 – 58). It does appear that Brown's method of updating the software in the memory would be through direct access to the software in the memory. However, modifying the method for updating the software of Brown (to include some security measures, as described by Ferguson) does not render the controller of Brown inoperable. Regardless of the method used for updating the software of Brown, the controller would then execute the software and operate accordingly. Further, the principle of operation is not changed. Brown's converter still converts between protocols regardless of a method utilized to update the software that controls such conversions.

Applicant's remaining arguments are related to the newly added limitations of

independent claim 10.

These new limitations are addressed above, and therefore, the arguments

presented are moot in view of the new grounds of rejection.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patents 6,373,841 7,133,845 6,681,995 6,880,083 6,997,809 and 7,631,198.

European Patent Application EP 1,324,226 A1.

'Advanced Perl Programming' by Sriram Srinivasan, copyright 1999, O'Reilly & Associates.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN G. SNYDER whose telephone number is (571)270-1971. The examiner can normally be reached on Mon. - Thurs. 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Henry Tsai can be reached on (571) 272-4176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. G. S./
Examiner, Art Unit 2184

/Henry W.H. Tsai/
Supervisory Patent Examiner, Art Unit 2184